California Energy Commission
Public Interest Energy Research (PIER) Program
ENVIRONMENTAL AREA RESEARCH

Mohave Ground Squirrel Habitat Modeling to Guide Solar Development

Research Powers the Future
PIER Environmental Research
www.energy.ca.gov/research/environmental

March 2011

Fact Sheet

The Issue

California is striving to increase its sources of renewable energy for electricity generation, such as sunlight, wind, and geothermal. New project developments, however, have biological impacts associated with them. Developing large solar projects in the desert impacts many threatened species including the Mohave ground squirrel. The California Energy Commission is collecting detailed distribution and habitat information on the Mohave ground squirrel, to identify compensation land and to assess the impacts of solar energy projects throughout the species' desert range.

Within its range, the Mohave ground squirrel has a patchy distribution, and the animal is difficult to detect through field surveys. There are extensive areas where surveys have not been conducted, leaving uncertainties on the Mohave ground squirrel's habitat quality, distribution, conservation status, and habitat connectivity. Improved data and modeling for Mohave ground squirrel distribution and habitat are required to guide efforts in habitat preservation.

This information will help resource managers evaluate the impacts of renewable energy technologies, and provide them planning tools for the siting, design, permitting, and mitigation of solar energy projects. The results of this work will be readily shared and used in desert planning and power plant permitting.

The Mohave Ground Squirrel (*Xerospermophilus mohavensis*) is state listed as a threatened species under the California Endangered Species Act.
Image Credit: Desert Tortoise Preserve Committee

Project Description

This project will provide information on the distribution, potential habitat, and habitat corridors of the threatened Mohave ground squirrel.

This project will also construct a potential habitat model for the Mohave ground squirrel, including habitat corridors—pathways of natural habitat connecting neighboring natural areas that act as safe passages for wildlife. Limiting habitat corridor impact in the Mojave Desert is important. These habitat connections are the basis for minimizing population fragmentation while maximizing the long-term evolutionary potential of the Mohave ground squirrel, which will help ensure the species' survival. Combined with the use of genetic data, this new potential habitat model will be used to quantitatively evaluate habitat corridors between Mohave ground squirrel population centers.

Habitat modeling will be conducted under current and projected future climate conditions. The project will assess how population and regional patterns of the squirrel's genetic diversity may change with altered landscape connectivity under possible future climate scenarios. The databases and the resulting maps of Mohave ground squirrel distribution and potential habitat will be made publicly available for use by state and federal land management agencies, non-governmental organizations, private industry, and academia.

PIER Program Objectives and Anticipated Benefits for California

This project will help conserve natural resources in California's desert regions while expediting the development of renewable solar energy facilities. Specifically, this research will help provide valuable information on the range of the threatened Mohave ground squirrel. This information will help with conservation efforts for the Mohave ground squirrel and with facilitating the permitting process for energy development.

As the state's energy demand continues to increase, seeking alternative sources of renewable energy is of vital importance. Through its focus on solar energy development, this project will help to ensure that stable, secure, and reliable sources of energy can continue to be provided to California residents in an environmentally responsible manner.

Project Specifics

Contract Number: 500-10-027
Contractor: U.S. Geological Survey
Location: Northwest Mojave Desert
Application: Regional
Assembly District: 34
Senate District: 18

Contract Amount: $223,755
Contract Term: January 2011 to January 2013

For more information, please contact:
Misa Milliron
California Energy Commission
PIER Program, Environmental Area
Phone: 916-651-9010
E-mail: Mward@energy.state.ca.us

Edmund G. Brown Jr., Governor
California Energy Commission
Chair Robert B. Weisenmiller, Ph.D. | Vice Chair James D. Boyd
Executive Director: Melissa Jones

California Energy Commission
Public Interest Energy Research
1516 Ninth Street,
Sacramento, CA 95814-5512

CEC-500-2011-FS-002